



**OU1 Design Change and Modification Sheet:  
Change/Modification # 22**

*This form is used to document changes and modification to the approved plans.*

*This form will be kept with the official Quality Control Site Plan.*

Date Initiated: 5/7/12

Date Executed: 5/7/12

Property ID: \_\_\_\_\_ Operable Unit 1 (Area 2)

**Design Change / Modification Description:**

Sheet D1 Section 5 (typical), requires a geotextile barrier be placed under 12" of rip rap for the slope above the path and under the bridge. The design does not require removal in this area. Rip rap is currently placed (pre-existing) on the lower portions of the slope of this area.

The pre-existing rip rap will not be removed. The geotextile barrier will be placed on the areas of the slope where there is no rip rap. Geotextile will not be placed under the existing rip rap. The area where no barrier is placed will be surveyed, and the area will be marked on the final as-built drawing as an area without a barrier.

Changes marked on Quality Control Plans? Yes \_\_\_\_\_ No \_\_\_\_\_

Signatures:

Approved:

USACE or EPA: [Signature] Date: 5-7-12

City of Libby: Jim Hammon Date: 5/7/12

Acknowledged:

CQC: [Signature] Date: 5/7/12

TQA: [Signature] Date: 5/7/12



## MATED RESTORATION VOLUMES:

MON FILL - 1,260 CY

SOIL - 395 CY

\* MINUS STRUCTURAL FILL - 200 CY

SE VOLUMES DO NOT INCLUDE THE BOAT RAMP RESTORATION.

## NOTE FOR AREA 2 - RIVERFRONT PARK

1. ALL DISTURBED AREAS SHALL BE SEEDED AND REVEGETATED.

## NOTES FOR AREA 3 - EMBANKMENTS

1. ALL AREAS SHALL BE GRADED TO BLEND INTO THE SURROUNDING GRADE. EROSION CONTROL BLANKETS (APPROXIMATELY 21,865 SF) SHALL BE PLACED ON THE DISTURBED AREAS AS PER MANUFACTURER'S SPECIFICATION AND SEEDED AS SHOWN ON DETAIL A ON SHEET D1.
2. COMPACTION SHALL BE ATTAINED AS PER CURRENT MDT SPECIFICATIONS USING EITHER A STAND-ALONE COMPACTOR OR A COMPACTION ATTACHMENT ON AN EXCAVATOR.
3. DISTURBED AREAS SHALL BE SEEDED ACCORDING TO MDT SPECIFICATIONS.
4. APPROXIMATELY 2,640 SF OF AREA UNDER THE HWY 37 BRIDGE SHALL BE RESTORED BY PLACING A PHYSICAL BARRIER, GEOTEXTILE, OVER THE EXISTING SURFACE OVERLAD BY 12 INCHES OF STRUCTURAL FILL.

SECTION OF SLOPE TO RECEIVE  
MARKER BARRIER AND RIPRAP  
GEOTEXTILE

EXISTING RIPRAP

## LEGEND

- AREA 1 - FORMER EXPORT PLANT
- AREA 2 - RIVERFRONT PARK
- AREA 3 - EMBANKMENTS
- GUARD RAIL
- EXISTING CONTOURS MAJOR
- EXISTING CONTOURS MINOR
- PROPOSED CONTOURS MAJOR
- PROPOSED CONTOURS MINOR

2010 QUICK RESPONSE REMOVAL  
(DO NOT DISTURB)

SEED RESTORATION (SEE TYPICAL SECTION 1 ON SHEET D1)

CRUSHED ROCK RESTORATION (SEE TYPICAL SECTION 2  
ON SHEET D1)

EMBANKMENT RESTORATION (SEE TYPICAL  
SECTION 4 ON SHEET D1)

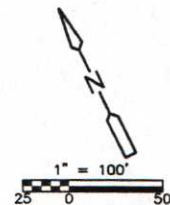
UNDER THE BRIDGE RESTORATION (SEE  
TYPICAL SECTION 5 ON SHEET D1)

AREA OUTSIDE OF THE EXTENT OF THIS DRAWING

BRIDGE SUPPORT (REF)

MOD#022

- DAVIS CONTROL POINT
- COMPUTED BOUNDARY LOCATIONS  
PER C.O.S. 2332 LCR
- MISCELLANEOUS TREES
- UTILITY POLES
- CHAINLINK FENCE
- LIGHT POST
- RAILROAD TIE POSTS
- WATER MAIN
- MONITOR WELL
- SEWER MANHOLE
- FIRE HYDRANT
- IRRIGATION VALVE
- EXPOSED BURIED POWER LINES
- DECORATIVE ROCKS



SEE DETAIL A ON SHEET D1  
FOR EMBANKMENT RESTORATION (TYP)

## SEED MIX FOR DISTURBED AREAS WITHIN MDT RIGHT OF WAYS

RIPARIAN WHEATGRASS	2 LBS/ACRE
HARD FESCUE	5 LBS/ACRE
TALL FESCUE	3 LBS/ACRE
CANADA BLUEGRASS	5 LBS/ACRE
REGAR MEADOW BROME	5 LBS/ACRE



TOTAL 20 LBS/ACRE

ESTIMATED DISTURBED AREA = 0.5 ACRES

## NOTES:

1. EMBANKMENT AREAS SHALL BE SEEDED ACCORDING TO MDT SPECIFICATIONS.
2. SEED MIX IS APPLICABLE FOR ALL AREAS TO BE RESTORED AS HYDROSEED, EMBANKMENT RESTORATION AND PLANTED RIPRAP.
3. CONTRACTOR ALSO RESPONSIBLE FOR RESTORING AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.

Revisions			
Symbol	Descriptions	Date	Approved
REV.1	PROJECT REVIEW COMMENTS	2/1/12	GM

CDM Federal Programs Corporation		 US ARMY CORPS OF ENGINEERS OMAHA DISTRICT RAPID RESPONSE PROGRAM	
Designed by: K. MAINZHAUSEN	 US EPA Region VIII Denver, Colorado	LIBBY ASBESTOS PROJECT LIBBY, MONTANA	
Drawn by: K. HUFFSMITH		OU1-REMEDIAL ACTION PROPOSED AREAS 2 & 3 RESTORATION PLAN	
Checked by: G. MCKENZIE		Scale: 1" = 100' Date: FEBRUARY 2012 Dwg. No.: 7	
Submitted by: G. MCKENZIE		Sheet number: C5	Plot Scale: Design File: File: K:\Libby OU1\DWG\September 2011 No.: AREAS 2 & 3.dwg





**OU1 Design Change and Modification Sheet:  
Change/Modification # 23**

*This form is used to document changes and modification to the approved plans.*

*This form will be kept with the official Quality Control Site Plan.*

Date Initiated: 5/17/12 Date Executed: 5/7/12

Property ID: \_\_\_\_\_ Operable Unit 1 (Area 1)

**Design Change / Modification Description:**

The final grade on the south perimeter of Area 1 where the City property adjoins the BNSF property will have a drainage feature installed along the southern boundary of Area 1 to direct run-off from the BNSF property to the pre-existing point of drainage discharge at the southwest corner of Area 1. The final grade elevations for the drainage feature will be recorded on the final as-build drawings.

Changes marked on Quality Control Plans? Yes \_\_\_\_\_ No \_\_\_\_\_

Signatures:

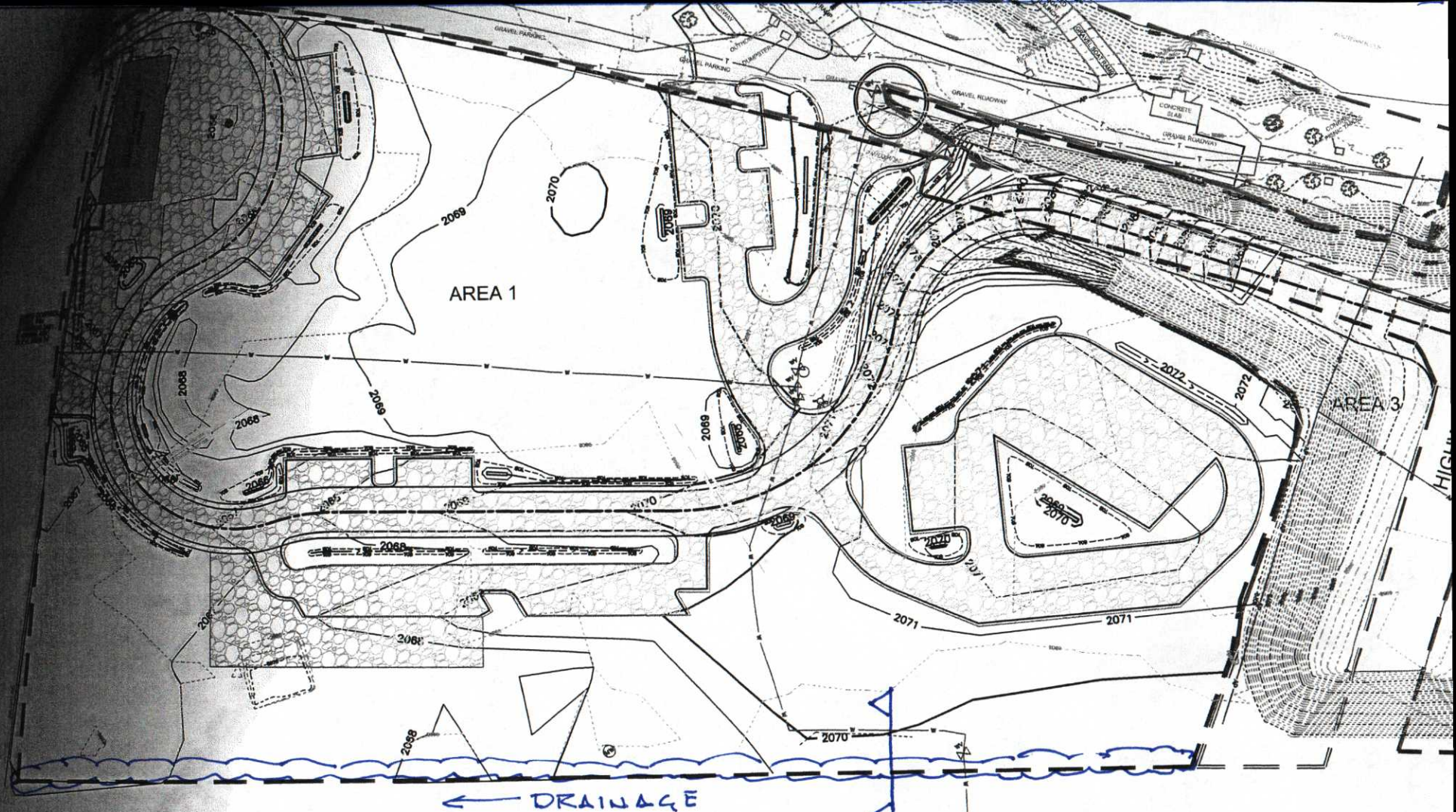
Approved:  Date: 5-7-12

City of Libby: Jim Hammom Date: 5/7/12

Acknowledged:  Date: 5/7/12

TQA:  Date: 5/7/12





#### COMMON FILL

1. COMMON FILL SHALL CONSIST OF MINERAL SOIL SUBSTANTIALLY FREE OF ORGANIC MATERIAL, LOAM, WOOD, TRASH AND OTHER OBJECTIONABLE MATERIALS WHICH MAY BE COMPRESSIBLE OR WHICH CANNOT BE PROPERLY COMPACTED.
2. COMMON FILL SHALL NOT CONTAIN ANY STONES LARGER THAN 2 INCHES IN THE LARGEST DIMENSION AND SHALL MEET THE GRADATION SHOWN ON TABLE 1 BELOW.
3. COMMON FILL SHALL HAVE A LIQUID LIMIT LESS THAN 35 AND A PLASTICITY INDEX LESS THAN 10.

TABLE 1. COMMON FILL GRADATION

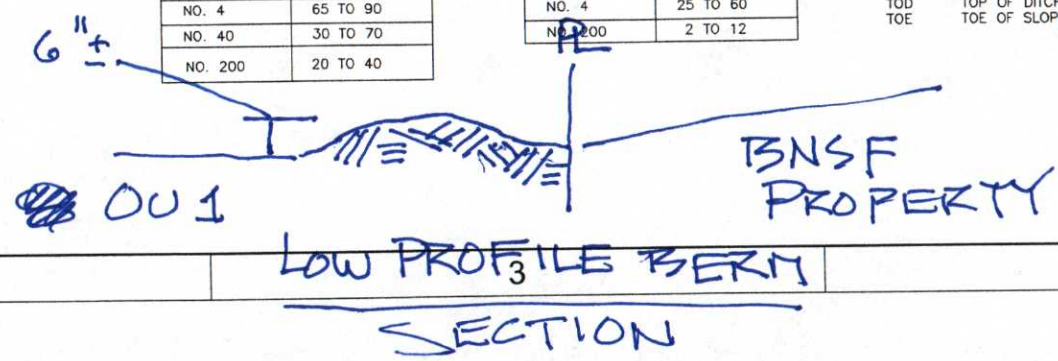
SIEVE SIZE	PERCENT FINES PER WEIGHT
2.0 INCHES	100
NO. 4	65 TO 90
NO. 40	30 TO 70
NO. 200	20 TO 40

TABLE 2. 3" MINUS GRADATION

SIEVE SIZE	PERCENT FINES PER WEIGHT
3.0 INCHES	100
NO. 4	25 TO 60
NO. 200	2 TO 12

#### GRADING LEGEND:

- X 67.05 FINISH ELEVATION (PLUS)
- FG FINISH GRADE
- EOG EDGE OF GRAVEL
- INV INVERT
- TOB TOP OF BANK
- TOD TOP OF DITCH
- TOE TOE OF SLOPE



5

4

MOD #023

LOW PROFILE BERM  
SECTION

2





**OU1 Design Change and Modification Sheet:  
Change/Modification # 24**

*This form is used to document changes and modification to the approved plans.*

*This form will be kept with the official Quality Control Site Plan.*

Date Initiated: 5/7/12

Date Executed: 5/7/12

Property ID: \_\_\_\_\_ Operable Unit 1 (Area 2)

**Design Change / Modification Description:**

Sheet D1 Section 4 (typical), requires that 8" of common fill and 4" of topsoil be placed as replacement fill on the embankments adjoining Area 2. Excavation in area is designed for 6".

Replacement of fill material on these embankments will be with a minimum 6" of topsoil, the common fill is excluded on the referenced embankments.

Changes marked on Quality Control Plans? Yes \_\_\_\_\_ No \_\_\_\_\_

Signatures:

Approved:

USACE or EPA:

Date: 5-7-12

City of Libby:

Date: 5/7/12

Acknowledged:

CQC:

Date: 5/7/12

TQA:

Date: 5/7/12



# ATED RESTORATION VOLUMES:

ION FILL - 1,260 CY

SOIL - 395 CY

MINUS STRUCTURAL FILL - 200 CY

E VOLUMES DO NOT INCLUDE THE BOAT RAMP RESTORATION.

## NOTE FOR AREA 2 - RIVERFRONT PARK

1. ALL DISTURBED AREAS SHALL BE SEEDED AND REVEGETATED.

## NOTES FOR AREA 3 - EMBANKMENTS

1. ALL AREAS SHALL BE GRADED TO BLEND INTO THE SURROUNDING GRADE. EROSION CONTROL BLANKETS (APPROXIMATELY 21,865 SF) SHALL BE PLACED ON THE DISTURBED AREAS AS PER MANUFACTURER'S SPECIFICATION AND SEEDED AS SHOWN ON DETAIL A ON SHEET D1.
2. COMPACTION SHALL BE ATTAINED AS PER CURRENT MDT SPECIFICATIONS USING EITHER A STAND-ALONE COMPACTOR OR A COMPACTION ATTACHMENT ON AN EXCAVATOR.
3. DISTURBED AREAS SHALL BE SEEDED ACCORDING TO MDT SPECIFICATIONS.
4. APPROXIMATELY 2,640 SF OF AREA UNDER THE HWY 37 BRIDGE SHALL BE RESTORED BY PLACING A PHYSICAL BARRIER, GEOTEXTILE, OVER THE EXISTING SURFACE OVERLAIN BY 12 INCHES OF STRUCTURAL FILL.

EMBANKMENT  
AREAS TO BE BACKFILLED  
W/ 6" TOP SOIL

### LEGEND

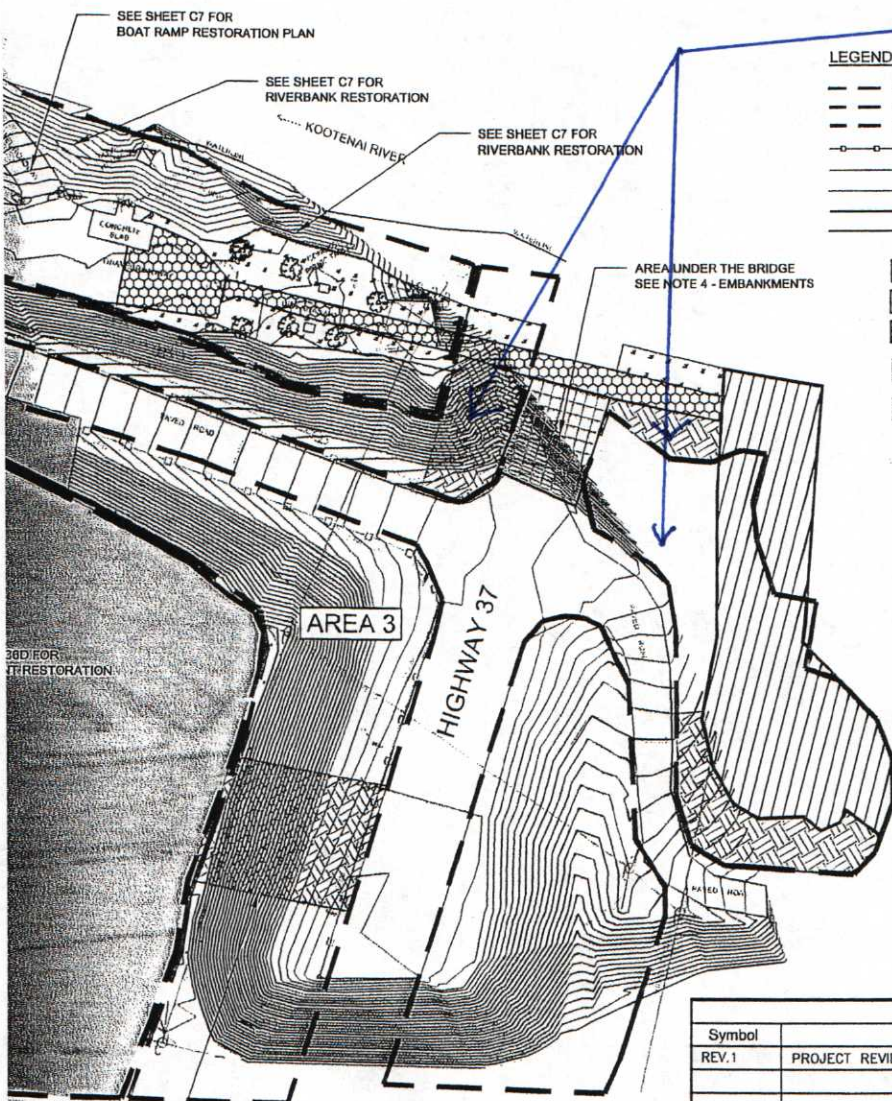
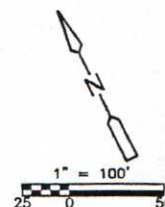
- AREA 1 - FORMER EXPORT PLANT
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- GUARD RAIL
- EXISTING CONTOURS MAJOR
- EXISTING CONTOURS MINOR
- PROPOSED CONTOURS MAJOR
- PROPOSED CONTOURS MINOR

- 2010 QUICK RESPONSE REMOVAL (DO NOT DISTURB)
- SEED RESTORATION (SEE TYPICAL SECTION 1 ON SHEET D1)
- CRUSHED ROCK RESTORATION (SEE TYPICAL SECTION 2 ON SHEET D1)
- EMBANKMENT RESTORATION (SEE TYPICAL SECTION 4 ON SHEET D1)
- UNDER THE BRIDGE RESTORATION (SEE TYPICAL SECTION 6 ON SHEET D1)

AREA OUTSIDE OF THE EXTENT OF THIS DRAWING

- DAVIS CONTROL POINT
- COMPUTED BOUNDARY LOCATIONS PER C.O.S. 2012 LCA
- MISCELLANEOUS TREES
- UTILITY POLES
- CHAMBER FENCE
- LIGHT POST
- RAILROAD TIE POSTS
- WATER MAIN
- MONITOR WELL
- SEWER MANHOLE
- FIRE HYDRANT
- IRRIGATION VALVE
- EXPOSED BURIED POWER LINES
- DECORATIVE ROCKS

MOD #24



SEE DETAIL A ON SHEET D1  
FOR EMBANKMENT RESTORATION (TYP)

### SEED MIX FOR DISTURBED AREAS WITHIN MDT RIGHT OF WAYS

RIPARIAN WHEATGRASS	2 LBS/ACRE
HARD FESCUE	5 LBS/ACRE
TALL FESCUE	3 LBS/ACRE
CANADA BLUEGRASS	5 LBS/ACRE
REGAR MEADOW BROME	5 LBS/ACRE

TOTAL 20 LBS/ACRE


ESTIMATED DISTURBED AREA = 0.5 ACRES

### NOTES:

1. EMBANKMENT AREAS SHALL BE SEEDED ACCORDING TO MDT SPECIFICATIONS.
2. SEED MIX IS APPLICABLE FOR ALL AREAS TO BE RESTORED AS HYDROSEED, EMBANKMENT RESTORATION AND PLANTED RIPRAP.
3. CONTRACTOR ALSO RESPONSIBLE FOR RESTORING AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.

Revisions			
Symbol	Descriptions	Date	Approved
REV.1	PROJECT REVIEW COMMENTS	2/1/12	GM

CDM Federal Programs Corporation		 US ARMY CORPS OF ENGINEERS OMAHA DISTRICT RAPID RESPONSE PROGRAM	
Designed by:	K. MAINZHAUSEN	LIBBY ASBESTOS PROJECT LIBBY, MONTANA  <b>OU1-REMEDIATION ACTION PROPOSED AREAS 2 &amp; 3 RESTORATION PLAN</b>	
Drawn by:	K. HUFFSMITH		
Checked by:	G. MCKENZIE		
Submitted by:	G. MCKENZIE	Scale:	1" = 100'
		Date:	FEBRUARY 2012
		Dwg. No.:	7
		Sheet number:	C5
		Plot Scale:	
		Design File:	
		File:	K:\Libby OU\DWG\September 2011 dwg\CS PROPOSED INITIAL GRADING AREAS 2 & 3.dwg





**OU1 Design Change and Modification Sheet:  
Change/Modification # 25**

*This form is used to document changes and modification to the approved plans.*

*This form will be kept with the official Quality Control Site Plan.*

Date Initiated: 5/7/12

Date Executed: 5/7/12

Property ID: \_\_\_\_\_ Operable Unit 1 (Area 2)

**Design Change / Modification Description:**

Sheet D1 Detail C shows the design riprap revetment. The revetment will be altered from the original design.

The EPA and the City have reached agreement on compensation for the vegetation removed during the course of the remediation. There will be no installation of the woody shrubs (including willow stakes) by the EPA contractors.

The existing riprap will be covered with minimum 6" of topsoil to at least the 2065 elevation, seeded, and covered with an erosion control blanket.

Changes marked on Quality Control Plans? Yes \_\_\_\_\_ No \_\_\_\_\_

Signatures:

Approved:

USACE or EPA: [Signature] Date: 5-7-12

City of Libby: Jim Hamm Date: 5/7/12

Acknowledged:

CQC: [Signature] Date: 5/7/12

TQA: [Signature] Date: 5/2/12



**OU1 Design Change and Modification Sheet:  
Change/Modification # 26**

*This form is used to document changes and modification to the approved plans.*

*This form will be kept with the official Quality Control Site Plan.*

Date Initiated: 5/7/12

Date Executed: 5/7/12

Property ID: \_\_\_\_\_ Operable Unit 1 (Area 2)

**Design Change / Modification Description:**

At the request of the City of Libby. Reference Sheet C5, the limits of the pathway on which  $\frac{3}{4}$ " minus crush base material is to be placed as the finish lift per the "crushed rock restoration section 2", on Sheet D1, is now to be changed to a 6" topsoil final lift commencing approximately at the western end of the power poles extending west to the eastern edge of the access ramp to the pump house.

Changes marked on Quality Control Plans? Yes \_\_\_\_\_ No \_\_\_\_\_

Signatures:

Approved:

USACE or EPA: [Signature] Date: 5-7-12

City of Libby: Jim Hammond Date: 5/7/12

Acknowledged:

CQC: [Signature] Date: 5/7/12

TQA: [Signature] Date: 5/7/12



# ATED RESTORATION VOLUMES:

MON FILL - 1,260 CY

SOIL - 395 CY

MINUS STRUCTURAL FILL - 200 CY

THE VOLUMES DO NOT INCLUDE THE BOAT RAMP RESTORATION.

## NOTE FOR AREA 2 - RIVERFRONT PARK

1. ALL DISTURBED AREAS SHALL BE SEEDED AND REVEGETATED.

## NOTES FOR AREA 3 - EMBANKMENTS

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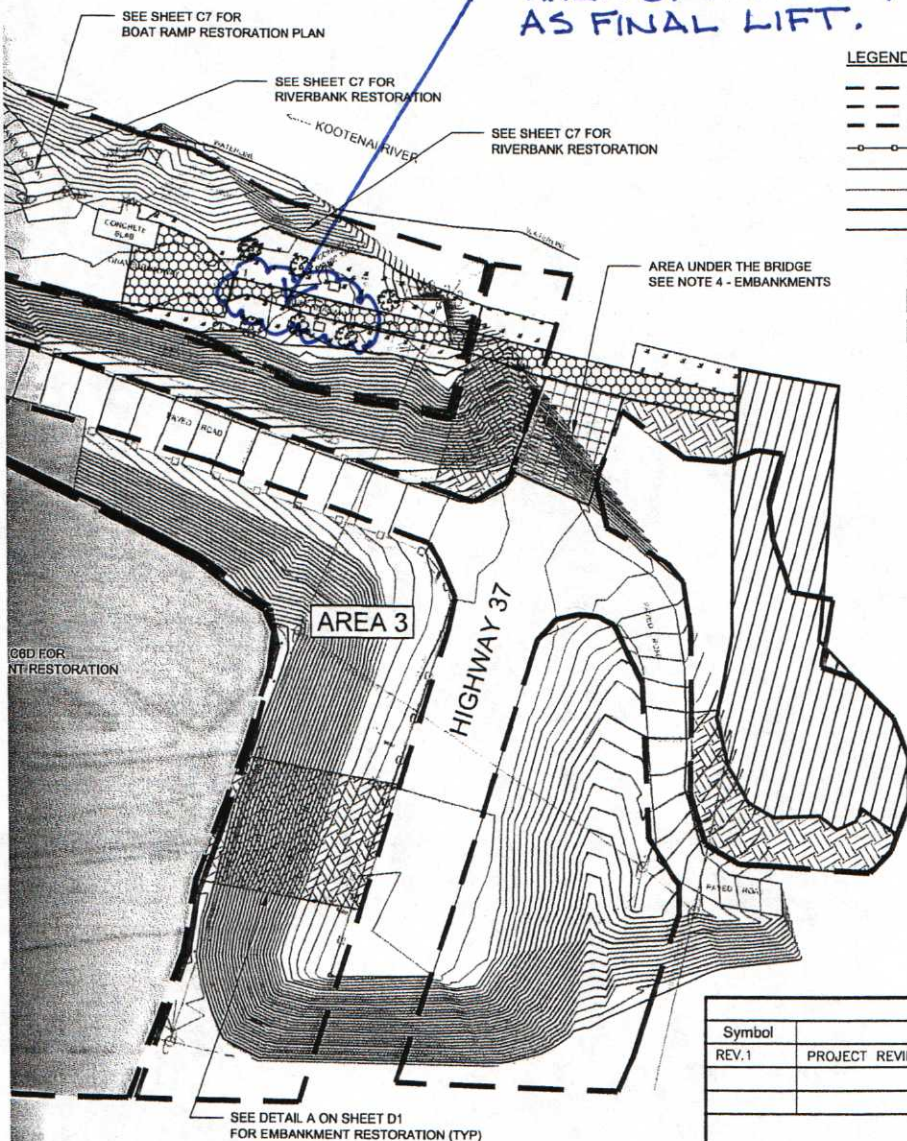
AREA OF PATHWAY TO HAVE TOPSOIL (6") AS FINAL LIFT.

D

C

B

A



### LEGEND

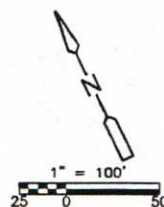
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- CRUSHED ROCK RESTORATION (SEE TYPICAL SECTION 2 ON SHEET D1)
- EMBANKMENT RESTORATION (SEE TYPICAL SECTION 4 ON SHEET D1)
- UNDER THE BRIDGE RESTORATION (SEE TYPICAL SECTION 5 ON SHEET D1)

AREA OUTSIDE OF THE EXTENT OF THIS DRAWING

- DAVIS CONTROL POINT
- COMPUTED BOUNDARY LOCATIONS PER C.O.S. 2332 LCI
- MISCELLANEOUS TREES
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- WATER MASH
- MONITOR WELL
- SEWER MANHOLE
- FIRE HYDRANT
- IRRIGATION VALVE
- EXPOSED BURIED POWER LINES
- DECORATIVE ROCKS

MOD #0260



Revisions			
Symbol	Descriptions	Date	Approved
REV.1	PROJECT REVIEW COMMENTS	2/1/12	GM

CDM Federal Programs Corporation		 US ARMY CORPS OF ENGINEERS OMAHA DISTRICT RAPID RESPONSE PROGRAM	
Designed by: K. MAINZHAUSEN	 US EPA Region VIII Denver, Colorado	LIBBY ASBESTOS PROJECT LIBBY, MONTANA	
Drawn by: K. HUFFSMITH		OU1-REMEDIAL ACTION PROPOSED AREAS 2 & 3 RESTORATION PLAN	
Checked by: G. MCKENZIE		Scale: 1" = 100' Date: FEBRUARY 2012 Dwg. No.: 7	
Submitted by: G. MCKENZIE	Sheet number: C5	Plot Scale: Design File: File: K:\Libby OU\OUO\September 2011 No.: 05 PROPOSED INITIAL GRADING AREAS 2 & 3.dwg	

### SEED MIX FOR DISTURBED AREAS WITHIN MDT RIGHT OF WAYS

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TALL FESCUE	3 LBS/ACRE
CANADA BLUEGRASS	5 LBS/ACRE
REGAR MEADOW BROME	5 LBS/ACRE

TOTAL 20 LBS/ACRE

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